

REMARKS/ARGUMENTS

Favorable reconsideration of this application is respectfully requested.

Claims 1-16 are pending in this application.

The outstanding Official Action includes a rejection of Claims 5, 6, 8, 13, 14, and 16 under 35 U.S.C. § 103(a) as being unpatentable over Nakanishi et al. (U.S. Patent No. 5,124,232, Nakanishi).

Before considering the outstanding prior art rejection applied to Claims 5, 6, 8, 13, 14, and 16, it is believed that a brief summary of the invention would again be helpful. In this regard, the present invention is directed to a phase-change optical recording medium including a substrate having a multilayered film formed thereon. This multilayered film includes a protective layer and a recording layer that provides for information recording/erasing based on reversible phase changes provided by the recording layer between a crystalline phase and an amorphous phase. The protective layer of rejected base independent Claims 5 and 13 is in contact with the recording layer and contains, *inter alia*, an oxide of aluminum and one or more carbides, with the content of the carbide in the protective layer being from 1 to 40 mol%. Independent base Claim 13 adds a requirement that one or more oxides of indium, silicon, titanium, hafnium and zirconium must also be present in the protective layer. This phase-change optical recording medium with this claimed protective layer has improved erasability and durability in overwriting at a high linear velocity as disclosed at page 3, lines 1-24, of the specification, for example.

Turning to the outstanding rejection of Claims 5, 6, 8, 13, 14, and 16 under 35 U.S.C. § 103(a) as being unpatentable over Nakanishi, it is first noted that the outstanding Action has indicated that Claims 7 and 15 are only objected to (see item 7 on the "Office Action Summary Sheet"). This is consistent with the fact that the outstanding Action contains no rejection of Claims 7 and 15.

Accordingly, it is believed that the rejection of Claim 8 is clearly improper as it includes all the subject matter of Claim 7 from which it depends and the rejection of Claim 16 is also clearly improper as Claim 16 clearly includes all the subject matter of Claim 15 from which it depends. Therefore, the withdrawal of the outstanding rejection of Claims 8 and 16 under 35 U.S.C. § 103(a) as being unpatentable over Nakanishi is respectfully submitted to be in order.

The bottom of page 2 of the outstanding Action appears to base the rejection of independent base Claims 5 and 13 on example 14 of Nakanishi that has a phase change optical recording medium protective layer including a mixture of  $\text{TiC}:\text{SiO}_2$  (4:6) while example 12 has a phase change optical recording medium protective layer including a mixture of  $\text{ZrC}:\text{SiO}_2$  (3:7) and the assertion that “the use of oxides of Al and the use of silicon carbides is disclosed,” with apparent reliance on col. 7, lines 29-55.

The paragraph bridging pages 2 and 3 of the Action then appears to suggest that the PTO is adopting a theory that it would have been obvious to one of ordinary skill to then have modified either of the protective layers of example 14 ( $\text{TiC}:\text{SiO}_2$  (4:6)) or of example 12 ( $\text{ZrC}:\text{SiO}_2$  (3:7)) of Nakanishi to be a different combination, “such as aluminum based upon the disclosure of equivalence in column 7 of the reference.” This paragraph then suggests it would have been further “obvious to one skilled in the art to use SiC in place of the carbides in the resulting combination based upon the language of equivalence with a reasonable expectation of achieving comparable results.”

The first deficiency of the PTO theory is that it fails to treat and consider all of the subject matter of independent Claim 13 that includes a requirement that one or more oxides of indium, silicon, titanium, hafnium and zirconium must also be present in the protective layer specified to also contain the Claim 5 subject matter of an oxide of aluminum and one or more carbides at the claimed mole %. In this regard, MPEP §2143.03 notes the well

established requirement that there is no establishment of a valid *prima facie* obviousness of a claimed invention absent a showing that all of the claim limitations of the claimed invention are taught or suggested by the prior art. As the outstanding Action fails to demonstrate how Nakanishi teaches or suggests including one or more oxides of indium, silicon, titanium, hafnium and zirconium in a protective layer already having an oxide of aluminum and one or more carbides, the rejection offered as to Claim 13 is clearly improper and should be withdrawn.

Furthermore, as Claims 14 and 16 both depend on Claim 13 and include all the limitations thereof, the rejection offered as to these claims is also clearly improper and should be withdrawn.

Turning to Claim 5, it is noted that the rationale offered in the outstanding Action appears to rely on the artisan being led to substitute an oxide of Al for the SiO<sub>2</sub> in examples 12 and 14 of Nakanishi without altering the existing molar fractions, 3:7 for the ZrC:SiO<sub>2</sub> of example 12 or 4:6 for the TiC:SiO<sub>2</sub> of example 14. No logical basis is seen in the teachings of Nakanishi for this clearly speculative conclusion.

In this regard, there is no reasonable teaching at col. 7, lines 29-55 or elsewhere in Nakanishi that can be said to suggest that an oxide of Al is equivalent to SiO<sub>2</sub> and can be directly substituted for SiO<sub>2</sub> in combinations with any carbide or nitride with no change as to the molar fractions used simply because the shared characteristic of layers containing oxides, carbides, and nitrides of metals and their compounds all have “excellent heat resistance, etc.” Thus, the mere fact that Nakanishi teaches that many different compounds containing oxides, carbides, and nitrides of metals exhibit “excellent heat resistance” cannot be said to be a reasonable teaching that any and all of the compounds suggested can be interchanged in different combinations with no need to consider different mole fractions for these combinations.

The approach adopted is akin to stating that Al and Cu can be substituted for one another in a conductive alloy with another element, such as tin or lead, at exactly the same mole fraction with that other element (e.g., tin or lead), under the rationale that there would be a reasonable expectation that the resulting alloy would always be equivalent. Similarly, if the rationale were correct, one would expect that Nakanishi itself would teach all combinations of oxides and carbides of the “metals such as Si, Al, Ti, Zr, Te, Ge, etc.” of col. 7, line 30, to have exactly the same molar fractions as each combination at exactly the same compound ratios are “equivalents” according to the PTO theory. Instead of teaching the use of the same fractions for all metal oxide-metal carbide combinations, Nakanishi teaches that different molar fractions are used when the metal carbides are TiC and ZrC and the metal oxide is SiO<sub>2</sub> as in examples 12 and 14 that are relied upon in the outstanding Action. In this regard, the teaching of a ratio of 4:6 for the TiC:SiO<sub>2</sub> of example 14 and the different ratio of 3:7 for ZrC:SiO<sub>2</sub> contradicts the apparent unwarranted assumption of the outstanding Action.

Moreover, as each of the possible compounds suggested at col. 7, lines 29-36, have excellent heat resistance, why does Nakanishi teach that different compounds should all be made up of different molar fractions? Note, for example, the ZnS:SiO<sub>2</sub> of example 15 and the different ratio of 8:2 thereof.

The outstanding Action has not fully considered the case of In re Kotzab, 55 USPQ2d 1313 (Fed.Cir. 2000) cited in the last response. Just as no substantial evidence there supported the PTO speculative conclusion that “one system” is the same thing as “one sensor,” there is no substantial evidence here pointing to substituting an oxide of Al for SiO<sub>2</sub> with no change of the molar fraction in examples 12 and 14 because there is no substantial evidence in Nakanishi that “an oxide of Al” is the same thing as “SiO<sub>2</sub>.” In addition, the PTO has ignored the directive in this case (at 55 USPQ2d 1317) that prohibits it from viewing reference teachings out of context as follows:

While the test for establishing an implicit teaching, motivation, or suggestion is what the . . . statements of [the reference] would have suggested to those of ordinary skill in the art, the . . . statements cannot be viewed in the abstract. Rather, they must be considered in the context of the teaching of the entire reference.

In addition, mere conclusions cannot be used as a replacement for substantial evidence in the reference. See In re Lee, 61 USPQ2d 1430, 1434 (Fed. Cir. 2002). Accordingly, the rejection of Claim 5 under 35 U.S.C. § 103(a) as being unpatentable over Nakanishi is traversed.

Furthermore, as Claims 6 and 8 both depend on Claim 5 and include all the limitations thereof, the rejection offered as to these claims is traversed for the reasons noted above as to Claim 5. In addition, Claims 6 and 8 add further features to those of base Claim 5 that are also not taught or suggested by Nakanishi and the rejection of these claims under 35 U.S.C. § 103(a) as being unpatentable over Nakanishi is traversed for this reason as well.

Moreover, it is again noted that the comparative examples described at pages 15-22 of the specification relative and FIGS. 5 and 6 and tables 1-10 on pages 23-25 of the specification present clear evidence of the unexpected results of a higher degree of erasure and improved recording sensitivity (Pth), benefits arising from the use of the claimed critical carbide content along with the claimed oxide aluminum in the claimed protective layer forming part of the claimed phase-change optical recording medium presented by the independent base claims (5 and 13) rejected here. See again In re Margolis, 228 USPQ 940, 942 (Fed. Cir. 1986) requiring that the PTO must consider comparative data disclosed in the Application specification as evidence in reaching any conclusion regarding obviousness. Also again note the requirement of In re Soni, 34 USPQ 2d 1684, 1687 (Fed. Cir. 1995) that the PTO must provide a persuasive basis to question such comparative data and the assertion that the results demonstrated thereby were unexpected. As no such showings have been made, the unrebutted establishment of unexpected results should further be considered to be

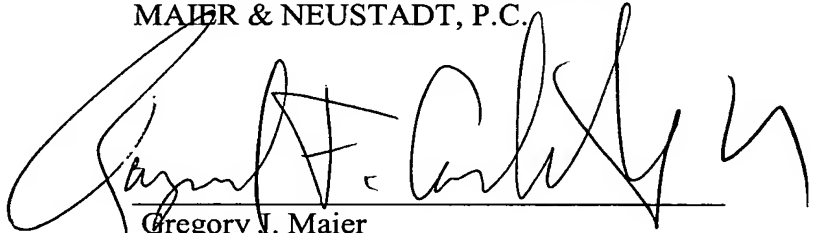
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sufficient to overcome the outstanding obviousness rejection of Claims 5, 6, 8, 13, 14, and 16 under 35 U.S.C. § 103(a) as being unpatentable over Nakanishi.

As it is believe that no other issues remain outstanding in this application, it is believed that this application is in condition for formal allowance and an early and favorable action to that effect is, therefore, respectfully requested.

Respectfully submitted,

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A large, stylized handwritten signature in black ink, likely belonging to Gregory J. Maier, is written over a horizontal line.

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